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ABSTRACT

This study reports the impact of the Flint Community Junior College (Michigan) reading improvement program on 150 participating students in terms of general group and racial sub-group (black and white) performance. After the groups were compared according to race and ability for data-collecting purposes, pre- and post-test measurements were taken of reading vocabulary, reading comprehension, and speed of reading comprehension. Different forms of the Cooperative English Test--College Level were used for pre- and post-testing, and analysis of variance was used to identify statistical differences. Results showed significant improvements made by the group as a whole in each area. In addition, no significant statistical differences were noted in gains made by either sub-group in any area. Finally, 55 per cent of the black students and 72 per cent of the white students successfully achieved the 25th percentile rank in comprehension and speed (considered minimum for college-level reading). (JO)

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READING PROGRESS: A BI-RACIAL COMPARISON

A STUDY OF THE READING ACHIEVEMENT OF BLACK AND WHITE STUDENTS AT FLINT COMMUNITY JUNIOR COLLEGE

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If all college students grew up in home and school environments favorable to reading development, few would have to be referred to special reading classes and clinics. Every individual could be expected to progress at his own rate of growth in an environment providing affection, security, adequate physical and medical care, experiences appropriate to the individual's stage of development, suitable reading materials, and sound practice and instruction in reading throughout elementary school and high school. He would be stimulated by frequent success; he would experience a happy minimum of failure and frustration. Thus he would be able to attain the best reading development for him, and his reading, in turn, would contribute to his all-round development.

Actually, however, conditions are frequently unfavorable. Classes are large; books, pamphlets, and magazines are inadequate; the curriculum is dull and drab, often remote from the student's daily life and not adapted to individual needs and interests; and teachers have neither the time nor the knowledge and skill necessary to help the seriously retarded readers. Consequently, a great number of students now in college fall short of the reading proficiency of which they are capable. Many are seriously handicapped in reading. This catalyzes, if not assures, academic failure.

Fortunately, something can be done to improve reading skills. Students who sense their handicap can voluntarily avail themselves of the resources of a college reading service. Students unaware of their problem can be referred to such a service by a college teacher or counselor. Regardless of the mode of entry, a college reading service, within its resources, stands ready to assist students with reading problems.

The reading service developed at Flint Community Junior College is centered in a reading center that caters to students at all levels of reading development. Abating the reading problem at FCJC through its reading center is a complete departure from traditionally recognized ways of handling incompetent readers at the college level. The approach is essentially that of the "individualizing of instruction," and largely incorporates programmed and semi-programmed materials geared to individual treatment.

Upon admission to the FCJC Reading Center, an analysis is made of each student's reading behavior. Instruction is then individualized to meet the specific needs of each student. The programmed nature of the instruction makes it possible for each student to start on a level where he can achieve success and confidently progress at his own learning and working rate. Fully aware of his progress at all times, the student's progress, in turn, is monitored by the reading counselor, who when necessary, modifies the selection and sequence of material to help the student achieve optimum success.

The FCJC reading program has received national recognition. The success of the program has been supported by statistical evidence and subjective appraisal. Test results reveal that the great majority of the students have been assisted in the ability to read, and student reaction, by way of subjective measurement, has correlated with objective data.

Despite ongoing evidence that the FCJC reading improvement service is successful, no investigation has been made of the degree of the impact of this program upon students of different ethnic groups. Studies investigating the relationship of reading programs to race are occasionally found in elementary and secondary education, but rarely in higher education. Because of the large numbers of students from the major

racial groups (Caucasian and Negro) at FCJC, such a study should prove to be of value to the college reading service and the faculty in general.

OBJECTIVE OF THE STUDY

This study was designed to 1) determine the effectiveness of the FCJC reading program upon students in general, 2) ascertain the effectiveness of the reading program upon black and white groups in particular, and 3) arrive at conclusions which can serve as a basis for additional improvements to the FCJC reading service.

HYPOTHESES INVESTIGATED

In this study, eight hypotheses were tested:

1. No gains in reading vocabulary will be made by any of the students.

2. There will be no difference in the gains in vocabulary made by black students and white students.

3. No gains in reading comprehension will be made by any of the students.

4. There will be no difference in the gains in comprehension made by black students and white students.

5. No gains in speed of reading comprehension will be made by any of the students.

6. There will be no difference in the gains in speed of reading comprehension made by black students and white students.

7. No students initially below the minimum cutting rank (25th percentile in comprehension and speed of comprehension) will achieve the minimum cutting rank in order to acquire the "S" grade in Reading (English 020).

8. There will be no difference in the percentage of white and black students initially below who achieve the minimum cutting rank in comprehension and speed of comprehension for the "S" grade in Reading.

PROCEDURE AND METHODS

This study, conducted during the first semester of the 1969-70 school year, involved 150 students, 75 black and 75 white, who were enrolled in a one semester, 3 credit course in reading improvement. All were subjected to an identical reading environment, involving diverse materials and levels of materials, based on student needs within the individualized approach. The 150 students were among a larger number who had completed the course. An attempt was made to have the 75 students in each ethnic group as comparable as possible in terms of pre-test reading skill variables. Different forms of the Cooperative Reading Test, College Level, were used for Pre and Post-testing.

In statistical design, analysis of variance was used. The design was a two-factor experiment with repeated measures of one factor. The groups were composed of different racial groups or different ability groups and the repeated measurements were on vocabulary, comprehension, and speed.

SUMMARY OF READING COURSE RESULTS*

Comparison of Vocabulary Pre and Post Test Scores of 75 Black and 75 White Students.

TABLE I

ANALYSIS OF VARIANCE OF VOCABULARY FOR 150 STUDENTS

Source of Variation	SS	df	MS	F	P
Students	610.50	1	610.50		
Subjects Within Groups	15655.00	148	105.77	5.78	F = 3.92 .95 (1,120)
Tests	1835.25	1	1835.25	81.30	F = 6.85 .99 (1,120)
Students x Tests	71.10	1	71.10	3.15	F = 2.75 .90 (1,120)
Within Groups	3340.70	148	22.57		

Interpretation: All three F values exceed the table values for significance.

Students - The comparison of black and white students has an F value of 5.78 which exceeds the 3.92 (1,120) required at the .95 level. This significance indicates the groups compared are not the same and precludes any interpretation of interaction of students and tests.

*The numerous tables appearing in this report are not numbered sequentially throughout due to changes in the final organizational presentation of the study.

TABLE II

MEAN VOCABULARY SCORES FOR 150 STUDENTS

Group	Pre-Test		Post-Test		Totals	
Blacks*	142.85	S.D. =	146.82	S.D. =	144.84	S.D. =
Whites*	144.73	S.D. =	150.65	S.D. =	147.69	S.D. =
Totals	143.79	S.D. =	148.74	S.D. =	146.26	S.D. =

(*) 75 Students

Tests - Comparison of the pre and post test scores has an F value of 81.30 which exceeds the 6.85 (1,120) required at the .99 level. This significance indicates the post-test performance is not the same as the pre-test performance. Inspection of the means in Table II indicates the post-test performance is better than the pre-test performance for both groups.

Inter-action - Any comparison of the inter-action of the students is precluded by the significant difference between groups discussed under Students, Table I.

Comparison of Comprehension Pre and Post Test Scores of 150 Students

TABLE V

ANALYSIS OF VARIANCE OF COMPREHENSION

FOR 150 STUDENTS

Source of Variation	SS	df	MS	F	P
Students	727.12	1	727.12	9.32	F= 6.85 .99 (1,120)
Subjects Within Groups	11553.50	148	78.064		
Tests	2459.625	1	2459.625	71.743	F= 6.85 .99 (1,120)
Student X Tests	30.075	1	30.075	.877	
Within Groups	5474.00	148	34.284		

Interpretation: The F values are significant for students and tests at the .99 level. The F values for interaction are not significant.

Students - The comparison of black and white students has an F value of 9.32 which exceeds the 6.85 (1,120) required at the .99 level. This significance indicates the groups are not the same and can not be compared.

Tests - Comparison of tests has an F value of 71.74 which exceeds the 6.85 (1,120) required at the .99 level. Table VI records the mean equated score of the two groups for the Pre and Post test scores. Inspection indicates that the Post-test scores are higher than the Pre-test scores.

TABLE VI

MEAN COMPREHENSION SCORES FOR 150 STUDENTS

Group	Pre-Test		Post-Test		Totals	
Blacks*	143.13	S.D. =	148.22	S.D. =	145.68	S.D. =
Whites*	145.61	S.D. =	151.97	S.D. =	148.79	S.D. =
Totals	144.37	S.D. =	150.10	S.D. =	147.23	S.D. =

(*) 75 Students

Inspection of these means indicates the mean totals of the Post-Tests are above the mean totals of the Pre-Tests.

Comparison of Speed Pre and Post Test Scores of 75 Black and 75 White Students.

TABLE IX

ANALYSIS OF VARIANCE OF SPEED FOR 150 STUDENTS

Source of Variation	SS	df	MS	F	P
Student	376.50	1	376.50	6.23	F = 3.92 .95 (1,120)
Subjects Within Groups	8962.50	148	60.55		
Tests	4531.87	1	4531.87	177.51	F = 6.85 .99 (1,120)
Students X Tests	41.70	1	41.70	1.63	
Within Groups	3778.40	148	25.53		

Interpretation: The F value for inter-action is not great enough to exceed the .90 level, indicating any change is uniform for the groups between Pre and Post testing. The F values for students and tests both exceed the table values for significance.

Students - The comparison of the groups of students has an F value of 6.23 which exceeds the 3.92 (1,120) required at the .95 level. This significance indicates the groups compared are not the same. Table X records the mean equated score of the two groups for the Pre and Post test scores.

TABLE X

MEAN SPEED SCORES FOR 150 STUDENTS

Group	Pre-Test		Post-Test		Total	
Blacks*	138.88	S.D. =	145.90	S.D. =	142.39	S.D. =
Whites*	140.37	S.D. =	148.89	S.D. =	144.63	S.D. =
Totals	139.62	S.D. =	147.40	S.D. =	143.51	S.D. =

(*) 75 Students

Inspection of these means indicates the differences between the groups exist in the Pre test and well as the Post test.

Tests - The comparison of the Pre and Post test scores has an F value of 177.51 which exceeds the 6.85 (1,120) required at the .99 level. This significance indicates the post-test performance is not the same as the pre-test performance. Inspection of the means in Table X indicates the post-test performance exceeds the pre-test performance for both groups.

The initial comparisons of 75 black and 75 white students in reading improvement showed a significant difference at the .95 level between the black and white groups for vocabulary, comprehension, and speed. This finding meant that any pre-test and post-test changes would be contaminated by group differences. To surmount this limitation, the two groups were separated into the upper, middle and lower thirds on the basis of comprehension pre-test scores.

Analysis of the groups of middle and lower third also showed differences which were significant at the .95 level for vocabulary, comprehension and speed. Due to the contaminating influence of group differences, no further analysis was made of the middle and lower groups.

Analysis of variance indicated that the upper third groups did not differ significantly and detailed interpretations are presented below.

Comparison of Vocabulary Pre and Post Test Scores of 25 Black and 25 White Students (Upper Third)

TABLE I

ANALYSIS OF VARIANCE OF VOCABULARY FOR 50 STUDENTS

Source of Variation	SS	df	MS	F	P
Students	2.25	1	2.25	.01	
Subjects Within Groups	7510.90	48	156.47		
Tests	357.25	1	357.25	17.2	F = 7.31 .99 (1,40)
Students x Tests	5.27	1	5.27	.25	
Within Groups	997.00	48	20.77		

Interpretation: The F values for students and inter-action are not significant indicating the groups are not different and that the groups do not change at a different rate between pre-test and post-test.

Comparison of the pre-test and post-test scores has an F value of 17.2 which exceeds the 7.31 (1,40) required at the .99 level. This significance indicates the post-test performance is not the same as the

pre-test performance. Inspection of the means in Table II indicates the post-test performance exceeds that of the pre-test performance for both groups.

TABLE II

MEAN SCORES OF VOCABULARY FOR 50 STUDENTS

Group	Pre-Test		Post-Test		Totals	
Black*	147.48	S.D. =	150.80	S.D. =	149.14	S.D. =
White*	147.32	S.D. =	151.56	S.D. =	149.44	S.D. =
Totals	147.40	S.D. =	151.18	S.D. =	149.29	S.D. =

(*) 25 Students

Comparison of Comprehension Pre and Post Test Scores of 50 Students (Upper Third)

TABLE III

ANALYSIS OF VARIANCE OF COMPREHENSION FOR 50 STUDENTS

Source of Variation	SS	df	MS	F	P
Students	92.25	1	92.25	2.78	
Subjects Within Groups	1601.90	48	33.37		
Tests	14.50	1	14.50	.76	
Students x Tests	.50	1	.50	.02	
Within Groups	908.90	48	18.93		

Interpretation: None of the F values exceed the .90 level for significance which indicates that the groups are not different nor are there differences between the pre and post test scores.

Comparison of Speed Pre and Post Test Scores of 25 Black and 25 White Students (Upper Third)

TABLE IV

ANALYSIS OF VARIANCE OF SPEED FOR 50 STUDENTS

Source of Variation	SS	df	MS	F	P
Students	37.25	1	37.25		
Subjects Within Groups	2164.70	48	45.09	.83	
Tests	846.87	1	846.87	30.47	F = 7.31 .99 (1,40)
Students x Tests	.45	1	.45	.01	
Within Groups	1334.10	48	27.79		

Interpretation: The F values for students and inter-action are not significant, indicating the groups are not different and that the groups do not change at a different rate between pre-test and post-test. Comparison of the pre-test and post-test scores has an F value of 30.47 which exceeds the 7.31 (1,40) required at the .99 level. This significance indicates the post-test performance is not the same as the pre-test performance. Inspection of the means in Table V indicates the post-test performance exceeds that of the pre-test performance for both groups.

TABLE V

MEAN SCORES OF SPEED FOR 50 STUDENTS

Group	Pre-Test		Post-Test		Totals	
Black*	143.68	S.D. =	149.36	S.D. =	146.52	S.D. =
White*	144.76	S.D. =	150.72	S.D. =	147.74	S.D. =
Totals	144.22	S.D. =	150.02	S.D. =	147.13	S.D. =

(*) 25 Students

Conclusions:

1. There are significant improvements in vocabulary due to training.

2. There are significant improvements in speed of reading due to training.

3. The two groups (black and white) do not differ significantly in their rate of improvement. This evidence was of particular interest in this investigation since the initial comparisons included groups which were significantly different and showed different rates of improvement. However, when controls were employed that eliminated the differences between the groups, no differences between the groups in the rate of improvement were found for vocabulary, comprehension and speed.

ABILITY COMPARED WITH PROGRESS

In order to investigate the relationship between student's ability and progress, the separation of students into groups of upper, middle and lower thirds on the basis of pre-test comprehension was used to compare Pre and Post tests. The comparison was made between the upper and lower third groups for black students as well as white students.

I. Vocabulary showed significant differences for students and tests but not for inter-action. The lack of inter-action indicates that improvement in vocabulary is not related to the comprehension ability of the student tested.

II. Comprehension was the basis for separating the groups and appeared related to progress for both black and white students.

TABLE I

ANALYSIS OF VARIANCE OF COMPREHENSION

FOR 50 BLACK STUDENTS

Source of Variation	SS	df	MS	F	P
Students	4342.75	1	4342.75	97.23	F = 7.31 .99 (1,40)
Subjects Within Groups	2141.30	48	44.61		
Tests	470.87	1	470.87	13.23	F = 7.31 .99 (1,40)
Students x Tests	349.72	1	349.72	9.82	F = 7.31 .99 (1,40)
Within Groups	1707.80	48	35.57		

TABLE II

ANALYSIS OF VARIANCE OF COMPREHENSION

FOR 50 WHITE STUDENTS

Source of Variation	SS	df	MS	F	P
Students	2819.62	1	2819.62	95.72	F = 7.31 .99 (1,40)
Subjects Within Groups	1408.30	48	29.34		
Tests	979.75	1	979.75	34.96	F = 7.31 .99 (1,40)
Students X Tests	712.85	1	712.85	25.44	F = 7.31 .99 (1,40)
Within Groups	1344.90	48	28.01		

Interpretation: All F values exceed 7.31 (1,40) required for significance at the .99 level.

Students - The initial 75 students were separated into thirds and significant difference between the upper and lower third confirms the precision of the separation.

Tests - The significance of the F values indicates change and inspection of Tables III and IV reveals that the post-test scores are larger than the pre-test scores.

TABLE III

MEAN SCORES OF COMPREHENSION FOR 50 BLACK STUDENTS

Group	Pre-Test		Post-Test		Totals	
Upper*	151.72	S.D. =	152.32	S.D. =	152.02	S.D. =
Lower*	134.40	S.D. =	142.88	S.D. =	138.84	S.D. =
(*) 25 Students						
Totals	143.26	S.D. =	147.60	S.D. =	145.43	S.D. =

TABLE IV

MEAN SCORES OF COMPREHENSION FOR 50 WHITE STUDENTS

Group	Pre-Test		Post-Test		Totals	
Upper*	153.48	S.D. =	154.40	S.D. =	153.94	S.D. =
Lower*	137.52	S.D. =	149.12	S.D. =	143.32	S.D. =
Totals	145.50	S.D. =	151.76	S.D. =	148.63	S.D. =

(*) 25 Students

Inter-action - The significance of the inter-action is that the upper and lower groups are not changing at the same rate. Inspection of Tables III and IV reveals that the lower groups improve a greater amount than the upper groups.

III. Speed showed significance for students and test for all students but only the white group shows significance for inter-action.

TABLE V

ANALYSIS OF VARIANCE OF SPEED FOR 50 BLACK STUDENTS

Source of Variation	SS	df	MS	F	P
Students	1909.75	1	1909.75	43.62	F = 7.31 .99 (1,40)
Subjects Within Groups	2106.60	48	43.88		
Tests	1056.25	1	1056.25	37.13	F = 7.31 .99 (1,40)
Students X Test	16.75	1	16.75	.58	
Within Groups	1365.40	48	28.44		

TABLE VI

ANALYSIS OF VARIANCE OF SPEED FOR 50 WHITE STUDENTS

Source of Variation	SS	df	MS	F	P
Students	1211.00	1	1211.00	27.25	F = 7.31 .99 (1,40)
Subjects Within Groups	2120.30	48	44.17		
Tests	1866.25	1	1866.25	69.97	F = 7.31 .99 (1,40)
Students X Tests	179.60	1	179.60	6.73	F = 4.08 .95 (1,40)
Within Groups	1280.10	48	26.66		

Interpretation: The F values for students and tests exceed 7.31 (1,40) required for significance at the .99 level for black and white students. The white student F value for inter-action exceeds 4.08 (1,40) required for significance at the .95 level.

Students - The initial 75 students were separated into thirds and significant difference may be interpreted to reflect relationship between comprehension and speed.

Tests - The significance of the F values indicates change and inspection of Tables VII and VIII reveals that the post-test scores are larger than the pre-test scores.

TABLE VII

MEAN SCORES OF SPEED FOR 50 BLACK STUDENTS

Group	Pre-Test		Post-Test		Totals	
Upper*	143.68	S.D. =	149.36	S.D. =	146.52	S.D. =
Lower*	134.12	S.D. =	141.44	S.D. =	137.78	S.D. =
Totals	138.90	S.D. =	145.40	S.D. =	142.15	S.D. =

(*) 25 Students

TABLE VIII

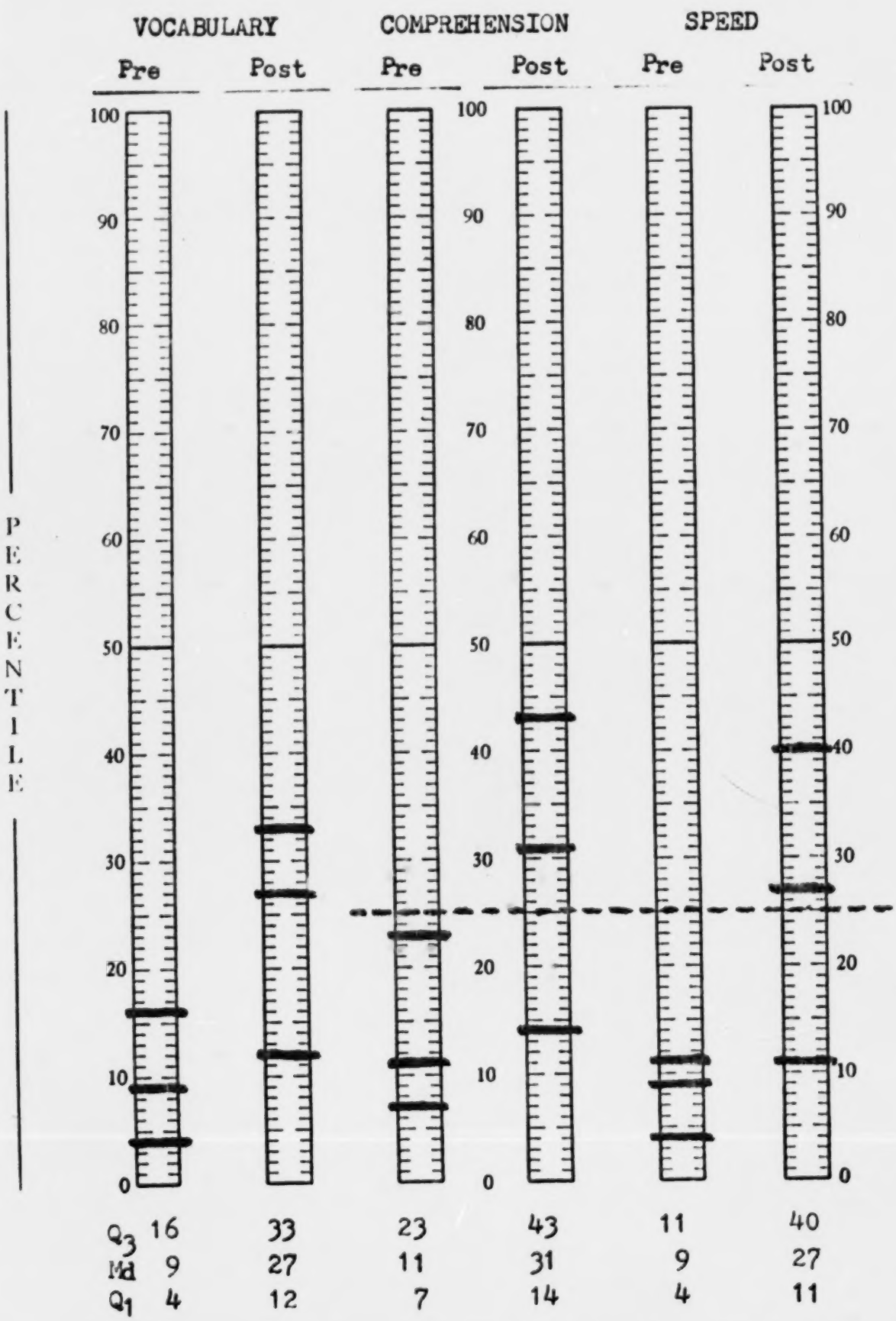
MEAN SCORES OF SPEED FOR 50 WHITE STUDENTS

Group	Pre-Test		Post-Test		Totals	
Upper*	144.76	S.D. =	150.72	S.D. =	147.74	S.D. =
Lower*	135.12	S.D. =	146.44	S.D. =	140.78	S.D. =
Totals	139.94	S.D. =	148.58	S.D. =	144.26	S.D. =

(*) 25 Students

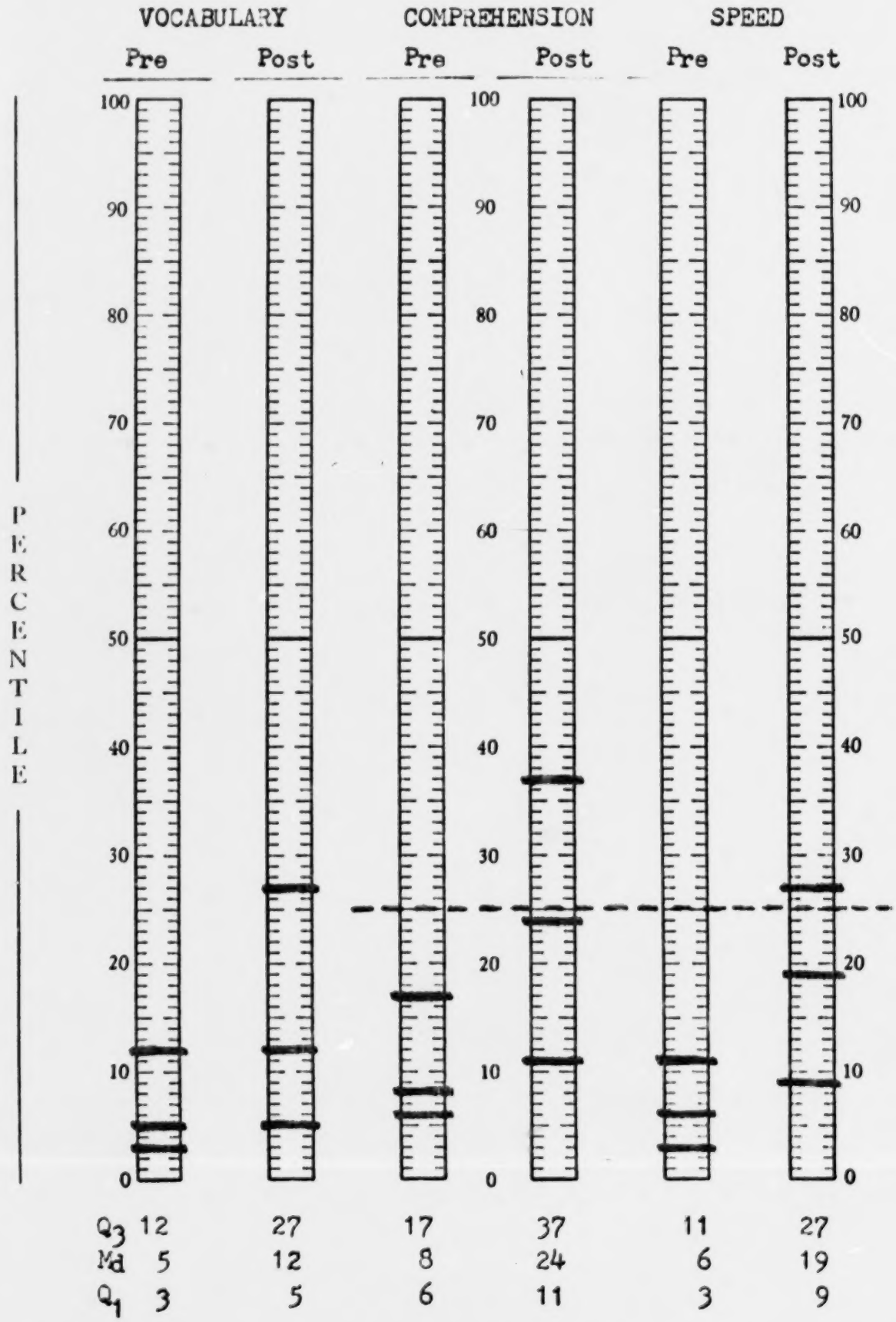
Inter-action: The significance of F value for white students means that the upper and lower groups are not changing at the same rate. Inspection of Table VIII reveals that the lower group improves a greater amount than the upper group. Determination of the factors that contribute to this change in white students and not in black students will require further investigation.

PERFORMANCE VARIABILITY OF 75 WHITE STUDENTS BY QUARTILE DEVIATION



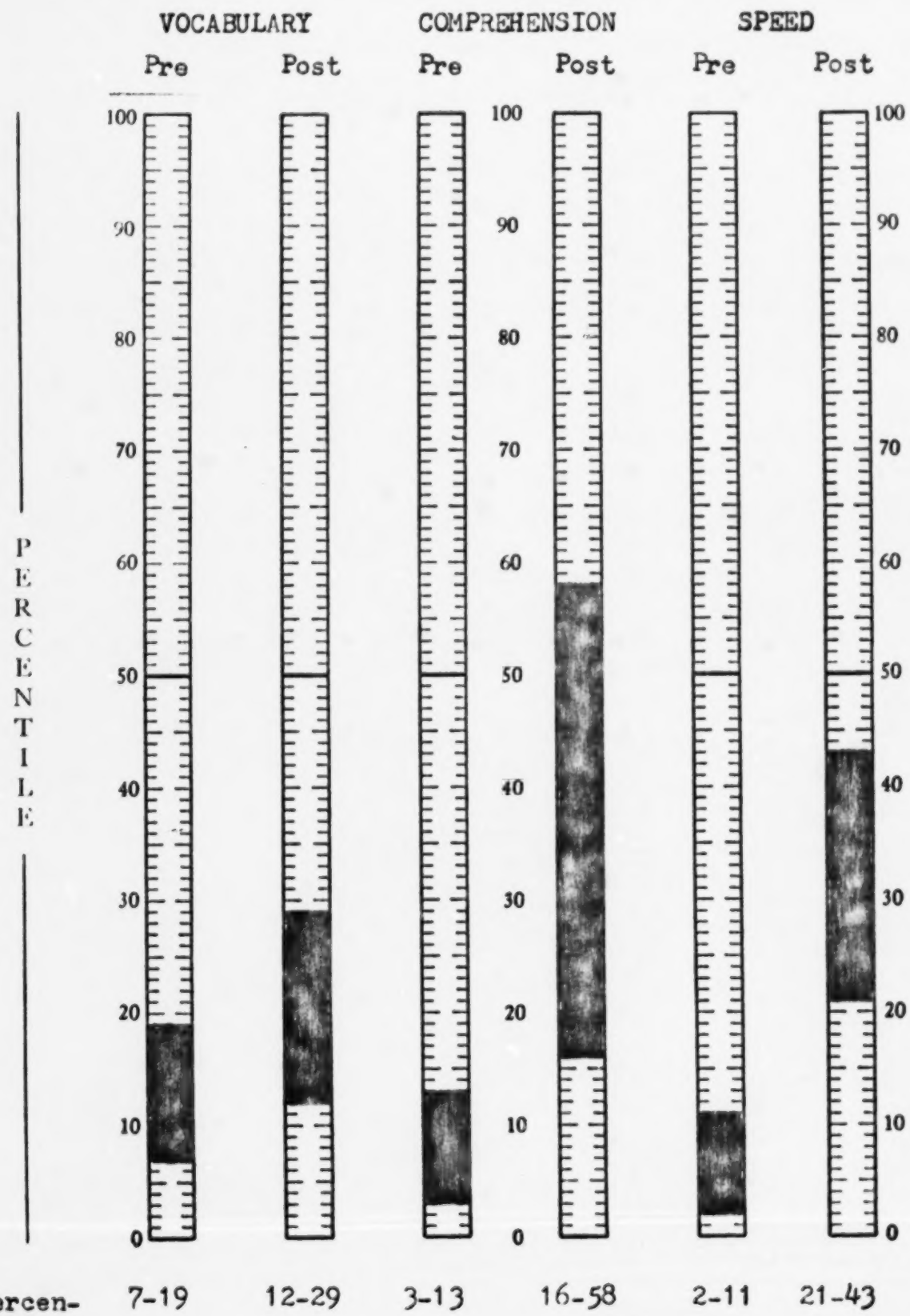
The division of the white population into four equal parts (quartiles) demonstrates reading progress that (1) places the local pre-test distribution against the national test norms, and (2) provides a comparison of the post-test achievement with pre-test performance. The latter indicates that the post-test distribution has moved significantly upward. The 25th percentile is the cutting score for grading purposes.

PERFORMANCE VARIABILITY OF 75 BLACK STUDENTS BY QUARTILE DEVIATION



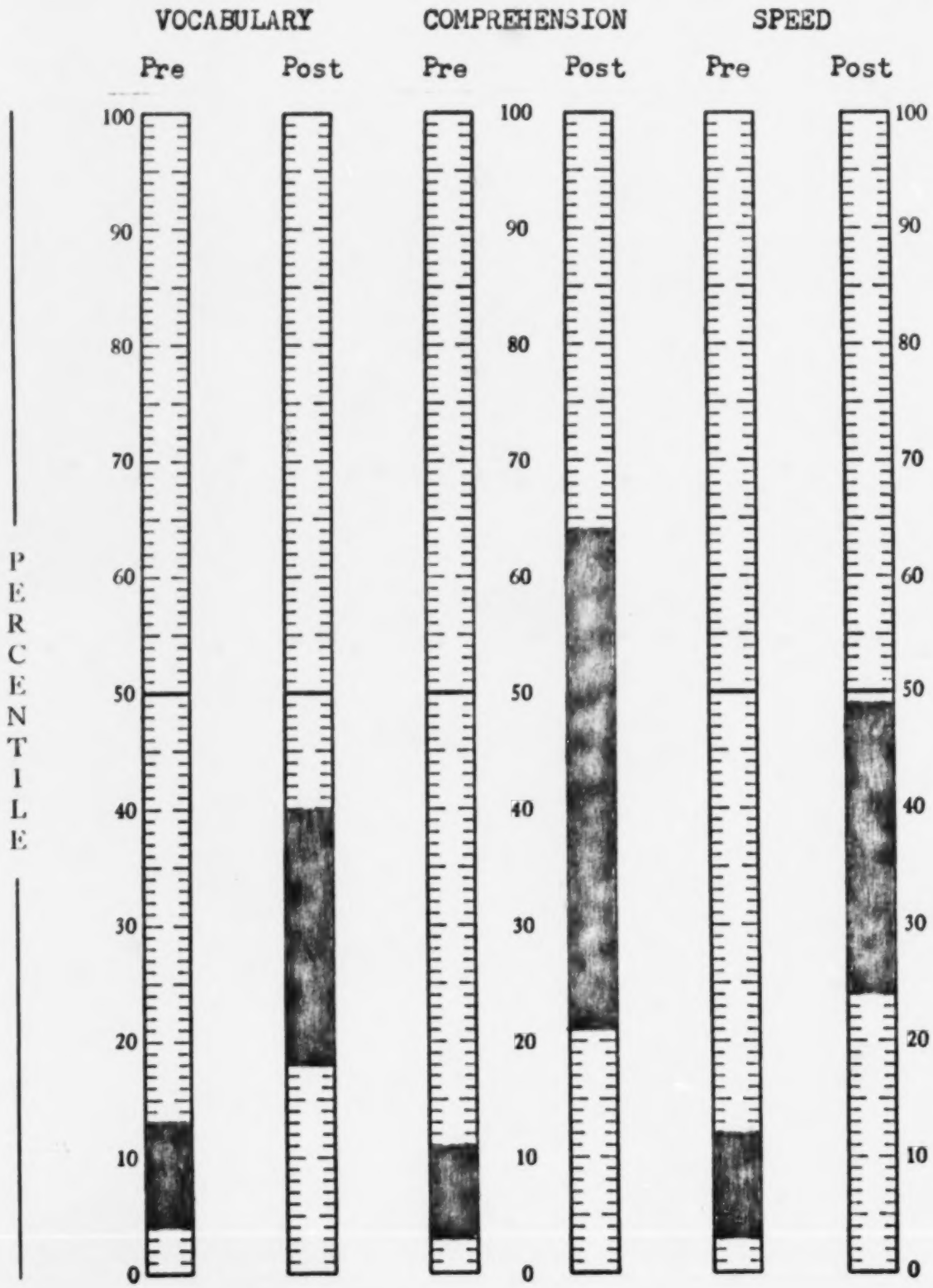
The division of the black population into four equal parts (quartiles) demonstrates reading progress that (1) places the local pre-test distribution against the national test norms, and (2) provides a comparison of the post-test achievement with pre-test performance. The latter indicates that the post-test distribution has moved markedly upward. The 25th percentile is the cutting score for grading purposes.

READING PROGRESS OF 10 BEST BLACK STUDENTS



Percentile bands entail one standard error of measurement above an earned score and one below it. When two comparative bands overlap, the difference is so heavily loaded with chance--accidental differences due to errors of measurement--that a <u>real</u> difference may not exist at all. When comparative bands do not overlap, the odds are great that a <u>real</u> difference in performance exists. The difference in the bands of the 10 black students, particularly in comprehension and speed, can be interpreted as educationally significant in favor of genuine reading growth.

READING PROGRESS OF 10 BEST WHITE STUDENTS



Mean Percentile Band	4-13	18-40	3-11	21-64	3-12	24-49

The percentile band concept, involving the non-overlapping of two comparative bands, indicates that a real difference exists in favor of genuine reading growth in the performance of the 10 best white students. This genuine growth is evident in all three reading skill areas.

THE FINDINGS

Following are the hypotheses and results of this study:

1. The first hypothesis, which stated that no gains in reading vocabulary will be made by any of the students, was rejected. Results showed there were significant improvements in vocabulary. For the 150 students as a group, the difference between the pre and post-testing was significant at the .99 level (1 chance in 100 of an erroneous difference).

2. The second hypothesis, which stated that there will be no difference in the gains in vocabulary made by black students and white students, required stratification of groups to complete the comparison of pre and post-test scores. Evidence showed the two groups were initially different. However, segmentation of the black and white students into initial equated groups revealed there was no difference in the growth between the two races.

3. The third hypothesis, which stated that no gains in reading comprehension will be made by any of the students, was rejected. There was a significant improvement in comprehension for the 150 students as a group. This improvement was significant at the .99 level between the pre and post-tests, indicating but one chance in 100 of an erroneous difference.

4. The fourth hypothesis, which stated that there will be no difference in the gains in comprehension made by black and white students, was accepted. The interaction between the 150 students (75 black and 75 white) was not statistically significant.

5. The fifth hypothesis, which stated that no gains in speed of reading comprehension will be made by any of the students, was rejected. There were significant improvements in speed of understanding. For the 150 students as a group, the difference between pre and post-testing was significant at the .99 level, indicating a small possibiility of error in the difference.

6. The sixth hypothesis, which stated that there will be no difference in the gains in speed of comprehension made by black students and white students, was accepted. Statistical evidence did not reject this hypothesis.

7. The seventh hypothesis, which stated that no student initially below the minimum cutting rank (25th percentile in comprehension and speed of comprehension) will achieve the minimum cutting rank in order to acquire the "S" grade in Reading (English 020), was rejected. Evidence showed that at the beginning of the course for the 150 students, 68% were below the 25th percentile rank in comprehension and 89% were below in speed. At the end of the course, 36% were below this ranking in comprehension and 38% were below in speed. The final grades assigned to students and submitted to the Registrar's Office were in accord with these statistics. 63% of the students had now acquired the "S" grade.

8. The eighth hypothesis, which stated that there will be no difference in the percentage of white and black students initially below who achieve the minimum cutting rank in comprehension and speed of comprehension for the "S" grade in Reading, was rejected. Of the 75 black students, 75% were

initially below the cutting score in comprehension, which reduced to 44% at course's end; 92% were initially below in speed, which reduced to 46% at course completion. For the 75 white students, 63% were initially below the cutting score in comprehension, which reduced to 28% at course's end; 87% were initially below in speed, which reduced to 29% at course completion. Thus, in terms of final grades based on ability to achieve the 25th percentile rank in comprehension and speed, 55% of the black students and 72% of the white students acquired the "S" grade.

CONCLUSIONS

The most important finding of the study was the overall success of the FCJC reading program. Computer assisted statistical analysis of the data made this conclusion readily available. The success of the program applied to both ethnic groups--black and white.

The 150 students as a group made significant progress in the three major reading skill areas investigated. However, relative to comprehension, the lower one-third blacks and the lower one-third whites made greater gains than the upper one-third groups within respective ethnic groupings. The study did not establish a cause-effect relationship for this finding. In the area of vocabulary, progress took place regardless of the comprehension level of the student. This finding was gratifying as colleges generally have not been too successful in promoting vocabulary growth. The individualizing of the FCJC vocabulary program may have been the key factor here.

The comparing of students by ethnic groups was a complicated and challenging process, as the 75 students within each group were not completely pre-test matched. However, where controls were employed, equating black and white students statistically, no differences were found between the races in the degree of improvement involving vocabulary, comprehension, and speed.

The grading of students utilized the percentile rank concept, which is based on a student's performance against that of students in the test norms group. (Previous research at FCJC established the 25th percentile rank in comprehension and speed of comprehension, Cooperative Reading Test--College Level, as the cutting score, <u>below</u> which students have extreme difficulty in achieving success in college classes. The 25th percentile rank is comparable to high school reading ability and, in essence, was determined by faculty standards for academic success where textbooks are involved.) The <u>minimum</u> goal for students below this rank was to achieve reading progress that would attain this goal within a one semester FCJC reading program.

In achieving the minimum cutting rank for the "S" grade, approximately one-half of the black students and three-fourths of the white students were successful. <u>The measurement of achievement and the assignment of grades was 100% statistically derived and completely free of any possible inclusion of teacher bias</u>. It was not within the scope of this study to isolate the possible variables which contributed toward the greater percentage of white students achieving higher and thus acquiring the "S" grade. Analysis of variance, the major statistical technique, pointed out that many students low in reading did make statistically significant gains in reading skills. However, the gains for some were not adequate to achieve the passing grade cutting point. (Grading standards for reading, in reality, do not differ from faculty grading standards; if below a designated score, failure is recorded.)

The study clearly indicated the need for additional attention to students relative

to cognitive and affective domains. Attitudes toward self and toward one's environment are important factors in reading achievement. The motivational factor alone needed to be carefully researched. There was reason to believe that factors which prevented black students from achieving higher were the same factors which inhibited white students. The study distinctly showed that ethnic group, taken independently, cannot be identified as a "factor" in underachieving college readers.

The identification and treatment of the disadvantaged college reader, whether black or white, cannot be conclusive unless affective measures represent a part of the instructional scheme.